

WHAT IS CLAIMED IS:

1. A semiconductor device fabrication method comprising the steps of:

(a) forming a template having openings that are located to correspond to a pattern in which a plurality of semiconductor elements in the form of chips are to be arranged,

5 (b) holding the template on the principal surface of a substrate on which the semiconductor elements are to be arranged, and

(c) spreading the semiconductor elements into a liquid and pouring the semiconductor-element-spread liquid over the substrate on which the template is held, thereby allowing the semiconductor elements to be disposed into the respective openings in
10 the template in a self-aligned manner.

2. The method of Claim 1, wherein in the step (c), the liquid is poured with the template-holding substrate being rotated in its principal surface.

15 3. The method of Claim 1, further comprising, before the step (b), the step (d) of forming a plurality of substrate electrodes for making the associated semiconductor elements electrically conductive, on parts of the principal surface of the substrate where the semiconductor elements are to be arranged.

20 4. The method of Claim 3, further comprising, after the step (c), the step (e) of securing the semiconductor elements to the associated substrate electrodes, and then removing the template from the substrate.

5. The method of Claim 1, further comprising, between the steps (b) and (c), the
25 step (d) of forming a plurality of substrate electrodes for making the associated

semiconductor elements electrically conductive, on parts of the principal surface of the substrate that are exposed through the openings of the template.

6. The method of Claim 5, further comprising, after the step (c), the step (e) of
5 securing the semiconductor elements to the associated substrate electrodes, and then removing the template from the substrate.

7. The method of Claim 1, wherein the semiconductor elements are edge-emitting semiconductor laser elements that emit a laser beam from a facet, and

10 in the step (a), the openings of the template are formed so that the respective emission directions of the semiconductor laser elements are aligned in one direction.

8. The method of Claim 7, wherein in each of the semiconductor laser elements, optical output from a front facet is equivalent in value to optical output from a rear facet.

15 9. The method of Claim 1, wherein in the step (a), the openings of the template are formed to correspond to the configurations of the semiconductor elements on the side thereof on which the semiconductor elements are disposed.

20 10. The method of Claim 9, wherein the semiconductor elements differ from each other in configuration on the side thereof on which the semiconductor elements are disposed into the associated openings.

11. The method of Claim 10, wherein the semiconductor elements are
25 semiconductor light emitters, and

in the step (a), the openings of the template differ from each other in configuration in accordance with the emission wavelengths of the semiconductor light emitters.

12. The method of Claim 10, wherein the semiconductor elements are
5 semiconductor light emitters, and

in the step (a), the openings of the template differ from each other in configuration in accordance with the optical output values of the semiconductor light emitters.